

Minimization of emissions during startup:

At the Key meeting between the vessel and TGTI personnel, vessel will confirm the volume needed to submerge the loading point. TGTI will confirm the reduced load rate to minimize emissions during the initial fill process. The vessel and TGTI will estimate the duration needed to assure submerged fill. Once that duration has occurred, TGTI will confirm with ship personnel that submersion has occurred. Once vessel confirms, the reduced rate will be maintained for an additional 30 minutes followed by the full load rate. This will be documented in the Control Center logs for that load. TGTI will also follow ship-specific VOC Management Plans designed to limit VOC emissions from the loading of marine vessels.

TGTI will develop a standard operating procedure for pre-berthing activities to ensure safe operation of the SPM buoy system. TGTI will reference the relevant sections of the Oil Companies International Marine Forum (OCIMF) Single Point Mooring Maintenance and Operation Guidance (SMOG) to develop their operating practices. The following sections of SMOG will be referenced in the development of these operations:

- Section 3.3 – Pre-arrival Procedures
 - Section contains recommendations on acceptance criteria for vessels, pre-arrival exchange of information, pre-arrival inspection of SPM, and pre-berthing exchange of information. Part of these procedures will be a review of the vessels VOC Management Plan and delegation of responsibilities for administering the aspects of the plan throughout the loading.
- Section 3.6 – Tanker Berthing and Mooring
- Section 3.7 – Connecting Rail Hoses
- Section 3.8 – Operations of Tankers in Berths
- Section 4.3.1. – Pre-berthing inspection
 - Table 4.1 in this section provides inspection recommendations prior to a vessel berthing. TGTI will develop their operating procedures based on this table. The plan will consider but not be limited to or constrained to the following:
 - Confirming correct location of the SPM
 - Confirming hatches are in place and closed
 - All lights and signals on SPM are working
 - No damage to SPM body
 - Electrical and Telemetry systems working
 - No signs of oil in areas around SPM or on SPM, particularly paying attention to joints and connection points
 - No signs of oil around floating hose
 - Valves, gauges, alarms, instrumentation, HPU, and hydraulics all functioning properly
 - No damage to hawser and pick up ropes
 - No loosening of hose connections

Minimization of emissions during shutdown:

TGTI will reference the recommendations in SMOG for disconnecting hoses.

- Section 3.10 – Disconnecting Hoses
 - Hoses are depressurized, valved and flanged shut before lowering back into the water.

Minimization of emissions during malfunctions:

TGTI will follow the recommendations in SMOG for monitoring of cargo transfer operations in order to prevent emission events from the loss of crude oil (malfunctions) from the system.

- Section 3.9 – Cargo Transfer
 - TGTI will develop a monitoring plan during loading to track the volumes leaving the onshore terminal and the volumes loaded at the SPM. The volumes will be calculated and compared throughout the loading to ensure there are no significant discrepancies.

Minimization of emissions during maintenance:

TGTI will develop a maintenance schedule for equipment associated with the SPM operation based on the recommendations in Tables 4.2 – 4.8 of SMOG. These tables list inspection recommendations for the following:

- Table 4.3.2. – Buoy and Structure Inspections
- Table 4.3.3. – Lubrication
- Table 4.3.4. – Mooring Legs and Anchor Point Inspection
- Table 4.3.5. – Cargo Transfer System Inspection
- Table 4.3.6. – Pipeline End Manifold Inspection
- Table 4.3.7. – Electrical, Instrument, and Safety Inspection
- Table 4.3.8. – Post Tanker Departure Inspection

The final plan developed by TGTI may only include some components of the SMOG recommendations and may include components not discussed in SMOG pending site-specific considerations.